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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/914,575 | 12/03/2001 | Peter Raymond Ball | 1267.1024 | 9631 |

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| EXAMINER | |
|---|---|
| LEE, DAVID J | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2633 | |

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/914,575 | BALL ET AL. | |
| | Examiner | Art Unit | |
| | David Lee | 2633 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) 1-27 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 03 December 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 08/31/01.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Specification*

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 8-9, 11-15, 19-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Wright et al. (US Patent No. 6,411,410).

Regarding claims 1, 19, and 27, Wright discloses an optical network comprising: a plurality of optical network units (fig. 2, $14_1$-$14_5$); and an optical source connected and arranged to transmit light signals to each of said plurality of optical network units (fig. 2, 12); wherein said optical source is capable of transmitting light signals at one or more of a plurality of different wavelengths (col. 2, lines 21-22), each optical network unit is preconfigured to accept a predetermined different subset of said wavelengths (col. 2, lines 26-28), and each wavelength of said plurality is accepted by a predetermined different subset of optical network units (col. 2, lines 26-28), the optical network further comprising: control circuitry (fig. 2, 12) operable to cause said optical source to transmit light signals at one or more selected such wavelengths corresponding to respective

desired subsets of said optical network units and further operable to effect a requested bandwidth redistribution by changing said one or more wavelengths selected for transmission to one or more different wavelengths corresponding to one or more different desired subsets of optical network units (col. 2, lines 26-28 and col. 2, lines 33-35, and col. 2, lines 36-46).

Regarding claims 2 and 20, Wright discloses that the control circuitry (fig. 2, 12) is operable to cause said optical source to transmit light signals at two or more selected wavelengths (col. 6, lines 17-22) corresponding to two or more desired subsets (i.e.- subset $14_1$-$14_2$ and subset $14_3$-$14_5$) of said optical network units.

Regarding claims 3 and 21, Wright discloses two or more desired subsets together include all of said optical network units (i.e.- the subset $14_1$-$14_2$ and the subset $14_3$-$14_5$ include all of the ONUs).

Regarding claim 4, Wright discloses that each of said optical network units is operable to accept more than one of said plurality of wavelengths transmitted by the optical source (in figure 2, each of the ONUs accepts more than one wavelength $\lambda 1$ and $\lambda 2$).

Regarding claim 8, Wright discloses that at least one of the optical network units (fig. 7, 14) comprises a filter (fig. 7, 42), which passes only those wavelengths that are to be accepted by that optical network unit, and a receiver (fig. 7, 44), which responds to light energy which is passed by the filter (col. 9, line 61 to col. 10, line 4).

Regarding claim 9, Wright discloses that the filter comprises a fixed filter (fig. 15, 50 and col. 14, lines 44-46).

Regarding claim 11, Wright discloses that the filter comprises a tunable filter (fig. 7, 42 and col. 9, lines 53-55).

Regarding claim 12, Wright discloses that the filter comprises a wavelength division demultiplexer which splits the incoming signal into various wavelengths, and wherein only those wavelengths which are to be passed by the filter are connected to the receiver (col. 9, lines 61-67).

Regarding claims 13 and 22, Wright discloses that a particular optical network unit (i.e.- $14_1$) is not included in more than one of the two or more desired subsets (i.e.- subset $14_1$-$14_2$ and subset $14_3$-$14_5$) of said optical network units (therefore, $14_1$ is only included in one subset).

Regarding claim 14, Wright discloses that the network is a passive optical network (col. 2, 24-25).

Regarding claim 15, Wright discloses that the signals transmitted from the optical source to an optical network unit are carried by optical fibers (fig. 2, 8 and col. 6, 17).

Regarding claim 23, Wright discloses control circuitry for use in an optical network (fig. 16, 261), which network comprises a plurality of optical network units (fig. 2, $14_1$-$14_5$) and an optical source connected and arranged to transmit light signals to each of said plurality of optical network units (fig. 2, 12), said optical source being capable of transmitting light signals at one or more of a plurality of different wavelengths (col. 2, lines 21-22), each optical network unit being pre-configured to accept a predetermined different subset of said wavelengths (col. 2, lines 26-28), and each wavelength of said plurality being accepted by a predetermined different subset of

optical network units (col. 2, lines 26-28), the control circuitry being operable to cause said optical source to transmit light signals at one or more selected such wavelengths corresponding to respective desired subsets of said optical network units and further being operable to effect a requested bandwidth redistribution by changing said one or more wavelengths selected for transmission to one or more different wavelengths corresponding to one or more different desired subsets of optical network units (col. 2, lines 26-28 and col. 2, lines 33-35, and col. 2, lines 36-46).

Regarding claim 24, Wright discloses that the light signals are transmitted by said optical source at two or more wavelengths (col. 2, lines 21-22), selected from said plurality of wavelengths, corresponding to two or more desired subsets of optical network units (i.e.- subset $14_1$-$14_2$ and subset $14_3$-$14_5$).

Regarding claim 25, Wright discloses that two or more desired subsets together include all of said plurality of optical network units (i.e.- the subset $14_1$-$14_2$ and the subset $14_3$-$14_5$ include all of the ONUs).

Regarding claim 26, Wright discloses that a particular optical network unit (i.e.- $14_1$) is not included in more than one of the two or more desired subsets (i.e.- subset $14_1$-$14_2$ and subset $14_3$-$14_5$) of said optical network units (therefore, $14_1$ is only included in one subset).

3. Claims 1-7, 13-15, 19-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Darcie et al. (US Patent No. 5,815,295).

Regarding claims 1, 19, 23, and 27, Darcie discloses an optical network comprising: a plurality of optical network units (fig. 1, 100-400); and an optical source connected and arranged to transmit light signals to each of said plurality of optical network units (fig. 2, 20); wherein said optical source is capable of transmitting light signals at one or more of a plurality of different wavelengths (fig. 2, transmitter 20 transmits $\lambda_1$, $\lambda_2$, $\lambda_3$, $\lambda_4$), each optical network unit is preconfigured to accept a predetermined different subset of said wavelengths, and each wavelength of said plurality is accepted by a predetermined different subset of optical network units (ONU 100 accepts $\lambda_1$, ONU 200 accepts $\lambda_2$ and so on), the optical network further comprising: control circuitry operable to cause said optical source to transmit light signals at one or more selected such wavelengths corresponding to respective desired subsets of said optical network units and further operable to effect a requested bandwidth redistribution by changing said one or more wavelengths selected for transmission to one or more different wavelengths corresponding to one or more different desired subsets of optical network units (referring to col. 4, lines 59-67: the sequencer 30 causes the optical source 20 to transmit selected wavelengths to respective ONUs; referring to col. 5, lines 23-30: bandwidth redistribution is accomplished in that the time slots can be any length which can provide different wavelengths to correspond to different ONUs, and bandwidth can also be adjusted by employing different data rates at each of the different time slots).

Regarding claims 2, 20, and 24, Darcie discloses that the control circuitry is operable to cause said optical source to transmit light signals at two or more selected

wavelengths (fig. 1, $\lambda_1$-$\lambda_4$) corresponding to two or more desired subsets of said optical network units (i.e.- from fig 1, ONU 100 and ONU 200 can be considered a subset and ONU 300 and ONU 400 can be considered another subset).

Regarding claims 3, 21, and 25, Darcie discloses that two or more desired subsets together include all of said optical network units (the two subsets as considered above contain all of the ONUs).

Regarding claim 4, Darcie discloses that each of the optical network units is operable to accept more than one of said plurality of wavelengths transmitted by the optical source (col. 5, lines 33-35).

Regarding claim 5, Darcie discloses that the optical source comprises a plurality of fixed wavelength lasers, each laser being operable to transmit at one of said plurality of wavelengths (col. 4, lines 56-57).

Regarding claim 6, Darcie discloses that the optical source comprises one or more tunable lasers (col. 4, line 56).

Regarding claim 7, Darcie discloses that the number of tunable lasers is equal to the number of desired subsets of optical network units (col. 4, line 56 and col. 1, lines 44-45: Darcie discloses that each of the different wavelength signals ($\lambda_1$, $\lambda_2$, etc) is generated from a different laser, so if the ONUs that accept $\lambda_1$ is considered a subset, then each subset will have its own laser, and therefore, the number of subsets will equal the number of lasers).

Regarding claims 13, 22, and 26, Darcie discloses that a particular optical network unit (i.e.- ONU 100 of fig. 1) is not included in more than one of the two or more

desired subsets of said optical network units (100 and 200 is a subset and 300 and 400 is another subset, therefore, 100 is included in only one of the desired subsets).

Regarding claim 14, Darcie discloses that the network is a passive optical network (col. 3, lines 54-55).

Regarding claim 15, Darcie discloses that the signals transmitted from the optical source to an optical network unit are carried by optical fibers (fig. 1, 11, and col. 4, line 17).

4. Claims 1-3, 5, 8, 10-11, 13, 15-16, and 18-27 rejected under 35 U.S.C. 102(b) as being anticipated by Chawki et al. (US Patent No. 5,745,269).

Regarding claims 1, 19, 23, and 27, Chawki discloses an optical network comprising: a plurality of optical network units (fig. 3, S1-S4); and an optical source connected and arranged to transmit light signals to each of said plurality of optical network units (fig. 3, T or Central Station); wherein said optical source is capable of transmitting light signals at one or more of a plurality of different wavelengths (fig. 3, $\lambda_1$, $\lambda_2$, $\lambda_3$, $\lambda_4$), each optical network unit is preconfigured to accept a predetermined different subset of said wavelengths, and each wavelength of said plurality is accepted by a predetermined different subset of optical network units (col. 2, lines 39-43, and col. 2, lines 53-58: the optical source T configures each ONU to accept predetermined wavelengths), the optical network further comprising: control circuitry operable to cause said optical source to transmit light signals at one or more selected such wavelengths corresponding to respective desired subsets of said optical network units (the optical

source T is operable to transmit wavelengths to predetermined ONUs, col. 2, lines 39-43), and further operable to effect a requested bandwidth redistribution by changing said one or more wavelengths selected for transmission to one or more different wavelengths corresponding to one or more different desired subsets of optical network units (col. 3, lines 14-15: since each ONU that accepts a predetermined wavelength is tunable according to the density of traffic, it is inherent that the central station T initiates bandwidth redistribution by changing the wavelengths to different ONUs to administer the density of traffic).

Regarding claims 2, 20, and 24, Chawki discloses that the control circuitry is operable to cause said optical source to transmit light signals at two or more selected wavelengths (fig. 3, $\lambda_1$, $\lambda_2$, $\lambda_3$, $\lambda_4$), corresponding to two or more desired subsets of said optical network units (i.e.- fig. 3, S1 and S2 is considered one subset, and S3 and S4 is considered another subset).

Regarding claims 3, 21, and 25, Chawki discloses two or more desired subsets together include all of said optical network units (as in previous paragraph, the two subsets include all of the ONUs S1-S4).

Regarding claims 13, 22, and 26, Darcie discloses that a particular optical network unit (i.e.- S1 of fig. 3) is not included in more than one of the two or more desired subsets of said optical network units (S1 and S2 is a subset and S3 and S4 is another subset, therefore, S1 is included in only one of the desired subsets).

Regarding claims 5, Chawki discloses that the optical source comprises a plurality of fixed wavelength lasers, each laser being operable to transmit at one of said plurality of wavelengths (col. 5, lines 8-10 and fig. 3, $\lambda_1$, $\lambda_2$, $\lambda_3$, $\lambda_4$).

Regarding claims 10, Chawki discloses that filter comprises a Fabry-Perot filter (col. 5, lines 20-21).

Regarding claims 11, Chawki discloses that filter comprises a tunable filter (col. 5, lines 20-21).

Regarding claims 15, Chawki discloses that the signals transmitted from the optical source to an optical network unit are carried by optical fibers (fig. 3, F1, F2).

Regarding claims 16, Chawki discloses n optical network as claimed in claim 1 as applied to an optical ring architecture (fig. 1).

Regarding claims 18, Chawki discloses that the optical source is located within one of the optical network units (col. 5, lines 31-32: each ONU has its own optical source that transmits wavelengths that are distinct from each other.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chawki et al. in view of Asano (US Patent No. 6,032,185).

Chawki discloses all of the limitations of claim 17 as stated above except for the limitation that the optical network is applied to a bus architecture. Asano, from a similar field of endeavor, discloses an optical network utilizing a bus architecture (fig. 1). One of ordinary skill in the art at the time of invention would have been motivated to use a bus architecture because they consist of point-to-point links and they provide considerable configurational flexibility and as a result, terminals can be added to the network or moved to different locations without major revisions in the cabling layout. Therefore, it would have been obvious to one of ordinary skill in the art to apply the bus architecture of Asano to the optical network of Chawki.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday, 9:00 am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

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David Lee